

## REMARKS

This Application has been carefully reviewed in light of the Office Action mailed September 24, 2009. At the time of the Office Action, Claims 33-41 were pending in this Application. Claims 33-41 were rejected. Claims 1-32 were previously cancelled without prejudice or disclaimer. Applicants respectfully request reconsideration and favorable action in this case.

### Rejections under 35 U.S.C. §103

Claims 33-41 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,819,718 issued to Reinhard Kohen et al. ("*Kohen*").

Applicants respectfully traverse.

In order to establish a prima facie case of obviousness, the references cited by the Examiner must disclose all claimed limitations. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). Even if each limitation is disclosed in a combination of references, however, a claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l. Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Rather, the Examiner must identify an apparent reason to combine the known elements in the fashion claimed. *Id.* "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Finally, the reason must be free of the distortion caused by hindsight bias and may not rely on ex post reasoning. *KSR*, 127 S.Ct. at 1742. In addition, evidence that such a combination was uniquely challenging or difficult tends to show that a claim was not obvious. *Leapfrog Enterprises, Inc. v. Fisher-Price, Inc. and Mattel, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007), citing *KSR*, 127 S.Ct. at 1741.

Applicants submit that *Kohen* does not teach or suggest every limitation of the claims. For example, regarding Claim 1, *Kohen* does not teach or suggest "configuring the punctured pattern that 8 of 48 bits of the data block are punctured, and the 8 of 48 bits of the data block are bits 1, 2, 4, 8, 42, 45, 47 and 48." Independent Claim 36 recites similar limitations.

The Examiner correctly states that "Koehn fails to disclose configuring the dotted pattern that 8 of 48 bits of the data block are dotted, and the 8 to 48 bits of the data block are bits 1, 2, 4, 8, 42, 45, 47 and 48." (Office Action, page 2). However, the Examiner alleges:

... But Koehn teaches the puncture routines as in Fig. 3-5. thus, it would have been obvious to person of ordinary skill in the art at the time of the invention was to understand the puncture/dotting/repeat pattern is the desired choice of inventor to select the pattern in the communication device. The puncturing pattern 8 of 48 bits of data block is the standard (Release 99), it would have been obvious to a person of ordinary skill in the art at the time of the invention was to implement into Koehn for rate matching.

(Office Action, page 2-3)

Applicants respectfully disagree. *Koehn* not only fails to teach using a dotted pattern of bits 1, 2, 4, 8, 42, 45, 47 and 48, but *Koehn* clearly *teaches away* from such a pattern, as explained below.

*Koehn* teaches that puncturing selection methods that do not equally distribute the punctured bits are problematic:

*The prior art selection algorithm has several drawbacks. With the known selection algorithm, it is possible that two or more adjacent bits are selected for puncturing. Furthermore, for most puncturing ratios the punctured bits are not equally distributed, and an unknown number of puncturing iterations over the data frame is necessary, complicating a hardware implementation.*

(Col. 6, lines 12-18)

Thus, *Koehn* teaches away from puncturing patterns in which adjacent bits are punctured, or where the punctured bits are not equally distributed. Accordingly, *Koehn* teaches an algorithm that ensures *equal distribution of punctured bits*.

A selection algorithm which operates in accordance with an illustrative embodiment of the present invention, operates in accordance with an adapted version of the Digital Differential Analyser algorithm as herein before described. A result of selecting bit positions for puncturing using this selection algorithm, is shown in FIG. 5, where once again, sixteen bit positions have been selected for puncturing out of ninety eight bits. As can be ascertained from FIG. 5, the separation between puncturing positions  $BP_i$  is always 6 or 7 bits. *As such the selected positions  $BP_i$  for puncturing are equally distributed over the whole*

*data frame, and this is effected in a one-pass selection process according to the algorithm.*

(Col. 6, lines 19-31)

The present application teaches the exact opposite. The present application teaches the use of specific puncture patterns in which the start and end of the data block are more heavily punctured than the middle of the data block:

[0008] Preferably, the puncturing pattern features a puncturing rate which increases from the middle area to both ends of the relevant data block. In this way, the bits at the start and the end of the data block to be punctured in each case are punctured more heavily where this is done, *not with an evenly-distributed puncturing rate, but with any puncturing rate which essentially increases towards both ends of the data block*; i.e., the gap between the punctured bits is on average ever shorter towards both ends of the data block.

Each of independent Claims 33, 34, 36, and 37 specifies such a puncture pattern that incorporates this concept. In particular, the puncture patterns recited in independent Claims 33, 34, 36, and 37 are intentionally *not evenly-distributed* (instead, they are weighted towards the ends), and also include *adjacent punctured bits*. As discussed above, *Koehn* explicitly *teaches away* from such bit patterns. Thus, one of ordinary skill in the art certainly would not be led by *Koehn* to the invention recited in Applicants' pending claims.

For at least these reasons, independent Claims 33, 34, 36, and 37 are allowable over *Koehn*. Thus, Applicants respectfully request reconsideration and allowance of independent Claims 33, 34, 36, and 37, as well as all claims that depend therefrom.

**CONCLUSION**

Applicants have made an earnest effort to place this case in condition for allowance in light of the remarks set forth above. Applicants respectfully request reconsideration of the pending claims.

Applicants respectfully submit a Petition for Two-Month Extension of Time. The Commissioner is authorized to charge the fee of \$490.00 required to Deposit Account 50-4871 in order to effectuate this filing.

Applicants believe there are no further fees due at this time, however, the Commissioner is hereby authorized to charge any fees necessary or credit any overpayment to Deposit Account No. 50-4871.

If there are any matters concerning this Application that may be cleared up in a telephone conversation, please contact Applicants' attorney at 512.457.2030.

Respectfully submitted,  
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